

What is claimed is:

1. A method for improving resolution of a radar operating within a bandwidth, the method comprising:

5 defining a quantity of substantially rectangular sub-band filters to subdivide the bandwidth in the frequency domain into the quantity of sequential sub-bands having a sub-bandwidth;

receiving the quantity of return signals, each signal associated with a transmission temporal moment;

10 routing the quantity of return signals received in one-to-one correspondence to the sub-band filters, each signal being received at a corresponding sub-band filter; and

summing the quantity of return signals received, synchronizing the associated transmission temporal moment to produce a reconstructed return signal.

15 2. The method of Claim 1, wherein the return signals are return signals in a pulse radar.

3. A radar receiver capable of receiving a bandwidth, the receiver comprising:

a quantity of substantially rectangular sub-band filters to subdivide the bandwidth in the frequency domain into the quantity of sequential sub-bands having a sub-bandwidth;

20 a router for receiving the quantity of radar return signals and outputting the signals in a one-to-one corresponding relationship to the sub-band filters; and

a stage for summing the quantity of radar return signals from the sub-band filters to create a reconstructed signal.

4. The radar receiver of Claim 3, wherein the receiver is a pulse radar receiver.

25 5. A processor for radar returns, the processor comprising:

a quantity of substantially rectangular sub-band filters to subdivide a bandwidth in the frequency domain into the quantity of sequential sub-bands having a sub-bandwidth;

30 a first component for receiving the quantity of return signals, each signal associated with a transmission temporal moment;

a second component configured to route the received return signals in one-to-one correspondence to the sub-band filters, each signal being received at a corresponding sub-band filter; and

5 a third component configured to sum the return signals synchronizing the return signals according to the associated transmission temporal moment to produce a reconstructed return signal.

6. A radar system having a bandwidth, the radar system comprising:

10 a quantity of substantially rectangular sub-band oscillators to subdivide the bandwidth in the frequency domain into the quantity of sequential sub-bands having a sub-bandwidth;

a router configured to route the output of each sub-band oscillator in one-to-one correspondence to the quantity of pulses for transmission;

a transmitter to transmit the quantity of pulses at a target;

15 a receiver to receive the quantity of pulses reflected from the target, each pulse associated with a transmission temporal moment; and

a summing node for summing the received return signals synchronizing the received return signals according to the associated transmission temporal moment to produce a reconstructed return signal.